

REMARKS/ARGUMENTS

Favorable reconsideration of this application in view of the above amendments and light of the following discussion is respectfully requested.

Claims 1-12, and 15-21 are pending. The present Amendment amends Claims 1-12 ; cancels Claims 13 and 14 without prejudice or disclaimer; and adds Claims 15-21.

Claims 2 and 12 were objected to for informalities. Claims 1 and 2 were rejected under 35 U.S.C. §102(e) as anticipated by Byers et al. (U.S. Patent No. 6,906,407, hereinafter Byers) in conjunction with Islam (U.S. Patent No. 6,954,084, hereinafter Islam); Claims 1-3 and 5 were rejected under 35 U.S.C. §103(a) as unpatentable over Yamamoto (Japanese Patent Publication No. 08-097352, hereinafter Yamamoto) in view of a definition of LSI found on the Internet and Byers.

Claims 4 and 6-12 were objected to, but indicated as allowable if rewritten in independent form. The indication of allowable subject matter is gratefully acknowledged.

In response to the indication of allowable subject matter, new Claim 20, which includes the features of Claims 1 and 12 as originally filed, is added. Accordingly, it is submitted that new Claim 20 is presently allowable.

New dependent Claim 21 is allowable for at least the same reasons as independent Claim 20 from which it depends, as well as for its own features, particularly in combination with independent Claim 20. This new claim finds non-limiting support in the claims as originally filed. The allowance of dependent Claim 21 is therefore requested.

In response to the objection to Claims 2 and 12, these claims are amended to correct the noted informalities. Thus, the objection to Claims 2 and 12 is believed to be overcome.

Claims 1-12 have been amended to recite additional features of the invention and correct minor informalities. The amendments find non-limiting support in the specification as originally filed and therefore add no new matter.¹

In response to the rejection of Claims 1 and 2 under 35 U.S.C. §102(e) as anticipated by Byers in conjunction with Islam, this rejections is traversed, and reconsideration of the rejection is respectfully requested.

Claim 1 presently recites, *inter alia*:

...an LSI configured to process signals, the LSI having signal input and output terminals and a surface to be coupled to the heat dissipation member ...

...the package structure being mounted on the interposer and having a space for receiving the LSI to allow the heat dissipation member to be located above the surface of the LSI.

Byers fails to describe every element of Claim 1 as presently amended. Byers describes a field programmable gate array assembly.² However, Byers fails to disclose or render obvious a package structure being mounted on an interposer and having a space for receiving an LSI to allow a heat dissipation member to be located above the surface of the LSI. The Office Action asserts that Figure 4 of Byers describes an LSI package (300) arranged on a mounting board (106), the package including an IC (10) corresponding to the claimed LSI, a package (107) of the IC device (102) corresponding to the claimed interposer, and a package (11) of IC device (104) corresponding to the claimed interface module.³ However, as can be seen in Figure 4 of Byers, package (111) is mechanically connected to package (107) such that IC (10) is located between package (107) and package (111). In this configuration, a heat sink cannot be thermally coupled to the IC (10). Thus, IC (10) does not include a surface to be coupled to a heat dissipation member, and does not disclose or render

¹ See the originally filed specification, for example, at page 32, line 19 to page 33, line 9 with reference to Figs. 10-14.

² See Byers, the Abstract.

³ See the outstanding Office Action at page 4, section 6.

obvious a package structure being mounted on an interposer and having a space for receiving an LSI to allow a heat dissipation member to be located above the surface of the LSI, as presently claimed.

Regarding Islam, these teachings were not cited with respect to the above-noted features regarding a package structure being mounted on an interposer and having a space for receiving an LSI to allow a heat dissipation member to be located above the surface of the LSI, and are not believed to overcome the above-noted deficiencies in Byers.

Accordingly, as Byers in conjunction with Islam does not describe every feature of Claim 1, the rejection of Claim 1 and all claims dependent therefrom is overcome.

In response to the rejection of Claims 1-3 and 5 under 35 U.S.C. §103(a) as unpatentable over Yamamoto in view of a definition of LSI found on the Internet and Byers, this rejections is traversed, and reconsideration of the rejection is respectfully requested.

As discussed above, Byers does not disclose or render obvious a package structure being mounted on an interposer and having a space for receiving an LSI to allow a heat dissipation member to be located above the surface of the LSI. Even if the combination of Byers and Yamamoto is assumed to be proper, Yamamoto fails to cure this deficiency.

As requested in the Office Action, an English translation of paragraphs [0016] to [0039] of Yamamoto is included herewith.

Yamamoto describes a multi-chip module.⁴ The Office Action asserts that Figure 1 and paragraph [0021] of Yamamoto describe a multi-chip component package that includes an electronic part (9) having signal input and output terminals, an interposer (2) configured to mount the electronic component (9), and an interface module (1) including signal transmission lines.⁵ However, looking at Figure 1 of Yamamoto, one of ordinary skill in the art at the time of the invention would recognize that the configuration described in

⁴ See Yamamoto, at paragraph [0017].

⁵ See the outstanding Office Action at page 7, section 9A(I).

Yamamoto would not allow the heat sink 11 to be thermally coupled to the surface of the electronic component (9). Thus, Yamamoto does not disclose or suggest thermally coupling the heat sink (11) to the surface of the electronic component (9), much less a package structure being mounted on an interposer and having a space for receiving an LSI to allow a heat dissipation member to be located above the surface of the LSI, as presently claimed.

Accordingly, the proposed combination of Yamamoto and Byers fails to disclose or suggest every element in Claim 1. Therefore, the rejection of Claim 1 (and all claims depending therefrom) is overcome, and reconsideration of the rejection based on Yamamoto in view of Byers is respectfully requested.

Further, Claim 3 is amended to recite features similar to those discussed above. Accordingly, as neither Byers nor Yamamoto discloses or renders obvious every feature recited in Claim 3 as presently amended, the rejection to Claim 3 and all claims dependent therefrom is traversed, and reconsideration of the rejection based on Yamamoto is requested.

New dependent Claims 15, 16, and 17 are allowable for at least the same reasons as independent Claim 1 from which they depend, as well as for their own features, particularly in combination with independent Claim 10. These new claims find non-limiting support in the claims and the specification as originally filed.⁶ The allowance of dependent Claims 15, 16, and 17 is therefore requested.

New dependent Claims 18 and 19 are allowable for at least the same reasons as independent Claim 3 from which they depend, as well as for their own features, particularly in combination with independent Claim 3. These new claims find non-limiting support in the specification as originally filed.⁷ The allowance of dependent Claims 18 and 19 is therefore requested.

⁶ See the originally filed specification, for example, at page 31, lines 12-16 with reference to Fig. 10.

⁷ See the originally filed specification, for example, at page 32, line 19 to page 33 line 9 with reference to Figs. 10-14.

Consequently, for the reasons discussed in detail above, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. Therefore, a Notice of Allowance for Claims 1-12, and 15-21 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Eckhard H. Kuesters
Attorney of Record
Registration No. 28,870

Surinder Sachar
Registration No. 34,423

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)